



BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

XRIN 0648-XE941

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Kodiak Transient Float Replacement Project

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an Incidental Harassment Authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to the City of Kodiak (the City) to incidentally harass, by Level B harassment only, marine mammals during construction activities associated with pile driving and removal and down hole drilling activities in Kodiak, Alaska.

DATES: This Authorization is effective from January 1, 2017 through December 31, 2017.

FOR FURTHER INFORMATION CONTACT: Laura McCue, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined “negligible impact” in 50 CFR 216.103 as “an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.”

Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Summary of Request

On August 15, 2016, NMFS received an application from the City for the taking of marine mammals incidental to the Kodiak transient float replacement project (Project) in Kodiak, Alaska. On October 17, 2016 NMFS received a revised application with updated take numbers. NMFS determined that the application was adequate and complete on October 21, 2016. Subsequent to NMFS accepting the application, changes were made to the injury zones, take numbers, and shutdown zones. The City provided a memo to NMFS on November 1, 2016 noting these changes. This memo, along with the City's application, and other supporting documents can be found on our website at <http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm>.

The City will conduct in-water construction work (*i.e.*, pile driving and removal) that may incidentally harass marine mammals. The activity may occur between January 1, 2017 and December 31, 2017, with restrictions on impact driving between May 1, 2017 and June 30, 2017.

Activities included as part of the Project with the potential to take marine mammals include vibratory and impact pile-driving operations and use of a down-hole drill/hammer to install piles in bedrock. Take by Level B harassment of individuals of six species is anticipated to result from the specified activity.

On August 4, 2016, NMFS released its Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Guidance). This new guidance established new thresholds for predicting auditory injury, which equates to Level A harassment under the MMPA. The transient float project used this new guidance when determining the injury (Level A) zones.

Description of the Specified Activity

Overview

The City plans to replace its existing transient float located in Kodiak's Near Island Channel. The purpose of this project is to replace the transient float with one that meets modern standards for vessel mooring and public safety for the next 50 years. The existing float has structural issues due to failing walers, stringers, and bullrails. Due to these structural problems, the float's capacity has been reduced. The existing float needs to be replaced due to its poor condition and reduced capacity. The planned action includes in-water construction, including the removal of the existing timber float and its associated timber and steel piles, and installation of the replacement float and steel piles. The replacement float will be located within nearly the same footprint as the existing facility; however, the overall float length will be shortened to improve all around accessibility within City right-of-way limits. A detailed description of the planned Project is provided in the **Federal Register** notice for the proposed IHA (81 FR 79350; November 10, 2016). Since that time, no changes have been made to the planned Project activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specific activity.

Dates and Duration

Pile installation and extraction associated with the Project is scheduled to begin in January 2017 and end in March 2017. Pile installation and removal will take approximately 57 hours and is expected to take place over a period of 12 days (not necessarily consecutive days). To minimize impacts to pink salmon fry (*Oncorhynchus gorbuscha*) and coho salmon smolt (*O. kisutch*), all in-water pile extraction and installation is planned to be completed by April 30, 2016. However, if work cannot be

completed by that date, the Alaska Department of Fish & Game (ADF&G) has recommended that the City refrain from impact pile installation from May 1 through June 30 within the 12-hour period beginning daily at the start of civil dawn (Marie 2015). If impact pile-driving occurs from May 1 through June 30, it will occur in the evenings during daylight hours, after the end of the 12-hour period that begins at civil dawn.

The 2.5-month long construction period accounts for the time required to mobilize materials and resources, remove and replace piles, remove the existing float, and install the new float, abutment, gangway, electrical components, and other safety features. The 2.5-month long construction period also accounts for potential delays in material deliveries, equipment maintenance, inclement weather, and shutdowns that could occur if marine mammals come within disturbance zones associated with the project area. However, the City has requested an authorization for up to one year of construction activities in case unforeseen construction delays occur.

Pile extraction, pile driving, and drilling will occur intermittently over the work period, from minutes to hours at a time (Table 1 in the City's application). The planned transient float replacement project will require an estimated 12 days total of pile extraction and installation, including eight hours of vibratory extraction and installation, 48 hours of down-hole drilling, and less than one hour of impact hammering. Timing will vary based on the weather, delays, substrate type (the rock is layered and is of varying hardness across the site, so some holes will be drilled quickly and others may take longer), and other factors.

Specified Geographic Region

The Kodiak transient float is located in the City of Kodiak, Alaska, at 57.788162° N, -152.400287° W, in Near Island Channel in the Gulf of Alaska (See Figures 1-3 in the City's Application). The transient float provides moorage for vessels from villages as well as from the commercial fishing fleet located in Near Island Channel, which separates downtown Kodiak from Near Island (Figure 1-2 in the City's application). The channel is approximately 200 meters (m) (656 feet(ft)) wide and 15 m (50 ft) deep in the project area. In the project footprint, the shoreline along the Transient Float is heavily armored with riprap (see Figure 4 of the City's application) and impervious surfaces directly abut the shoreline adjacent to the float. The channel is located within Chiniak Bay which opens to the Gulf of Alaska.

The project is located in a busy industrial area (Figure 3 of the City's application). Channel Side Services' seafood packing facility is located approximately 25 m (82 ft) east of the float and Petro Marine Services floating fuel dock is located approximately 20 m (66 ft) west of the float. Pier 1, the Alaska Marine Highway Ferry dock, is located 100 m (328 ft) southwest of the float and Trident Seafood's shore-based seafood processing plant is located approximately 175 m (574 ft) to the southwest (See Figure 3 in the City's application). When in operation, Trident's plant receives numerous commercial fishing vessels daily for offloading and processing of catch.

Detailed Description of Activities

The planned action for this IHA request includes in-water construction, including the removal of the existing timber float and its associated steel piles (19 12-inch steel piles), and installation of the replacement float and steel piles (12 24-inch steel piles). The replacement float will be located within nearly the same footprint as the existing

facility; however, the overall float length will be shortened to improve all around accessibility within City right-of-way limits. The planned transient float project will require an estimated 58 hours over 12 days total of pile extraction and installation, including approximately eight hours of vibratory extraction and installation, 48 hours of down-hole drilling, and less than one hour of impact hammering. In water construction activities are expected to occur over 2.5 months.

While work is conducted in the water, anchored barges will be used to stage construction materials and equipment. The existing piles, fixed pier, float and gangway will be removed and disposed of properly and the new float will be installed.

It is estimated that it will take 10 minutes of vibratory pile-driving and 4 hours of down-hole drilling per pile for installation, and 20 minutes of vibratory pile-driving per pile for extraction. For the installation of 12 piles, this is an estimated 2 hours of total time using active vibratory equipment and 48 hours of total time using down-hole drilling. For the in-water extraction of 19 piles, this is an estimated 6.33 hours of total time using active vibratory equipment. Two piles will remain in place, and two piles to be removed are above the high tide line. No temporary piles are associated with this project.

The 24-inch steel piles will be driven 3-4.6 m (10-15 ft) through sediment and drilled another 3 m (10 ft) into bedrock. The sequence for installing the 24-inch piles will begin with insertion through overlying sediment with a vibratory hammer for about eight minutes per pile. Next, a hole will be drilled in the underlying bedrock by using a down-hole drill. A down-hole drill is a drill bit that drills through the sediment and a pulse mechanism that functions at the bottom of the hole, using a pulsing bit to break up the harder materials or rock to allow removal of the fragments and insertion of the pile. The

head extends so that the drilling takes place below the pile. Drill cuttings are expelled from the top of the pile as dust or mud. It is estimated that drilling piles through the layered bedrock will take about four hours per pile. Finally, the vibratory hammer will be used again to finish driving the piles into bedrock, for approximately two minutes per pile (Table 1).

Although impact pile-driving is not expected for this project, the contractor may choose to impact proof the piles after down-hole drilling. In this case, two to five blows of an impact hammer will be used to confirm that piles are set into bedrock, for an expected maximum time of three minutes of impact hammering per pile. When the impact hammer is employed for proofing, a pile cap or cushion will be placed between the impact hammer and the pile.

Table 1. Estimated number of hours planned for pile extraction and installation.

Pile type, location, method	Number of piles	Vibratory hammer		Down-hole drill		Impact hammer	
		# of piles	Hours	# of piles	Hours	# of piles	Hours
12-inch Steel Existing Float Extraction	19	19	6.33	0	0	0	0
24-inch Steel Replacement Float Installation	12	12	2	12	48	12	0.6
Total hours in-water			8.33		48		0.6

Comments and Responses

A notice of NMFS's proposal to issue an IHA to the City was published in the **Federal Register** on November 10, 2016 (81 FR 79350). That notice described, in detail, the City's activity, the marine mammal species that may be affected by the

activity, and the anticipated effects on marine mammals. During the 30-day public comment period, NMFS received comments from the Marine Mammal Commission. The Marine Mammal Commission recommended that NMFS issue the IHA, subject to inclusion of the proposed mitigation, monitoring, and reporting measures.

Description of Marine Mammals in the Area of the Specified Activity

Marine waters near Kodiak Island support many species of marine mammals, including pinnipeds and cetaceans; however, the number of species regularly occurring near the project area is limited. Steller sea lions (*Eumatopias jubatus*) are the most common marine mammals in the project area and are part of the western Distinct Population Segment (wDPS) that is listed as endangered under the Endangered Species Act (ESA). Harbor seals (*Phoca vitulina*), harbor porpoises (*Phocoena phocoena*), Dall's porpoise (*Phocoenoides dalli*), killer whales (*Orcinus orca*), and humpback whales (*Megaptera novaeangliae*) may also occur in the project area, especially in the waters between Near Island Channel and Woody Island, but far less frequently and in lower abundance than Steller sea lions. Fin whales (*Balaenoptera physalus*) and grey whales (*Eschrichtius robustus*) occur in the nearshore waters around Kodiak Island, but are not expected to be found near the project area because of the narrow channel and high level of boat traffic. The relatively large numbers of Steller sea lions in the area may serve as an additional deterrent for some marine mammals. Table 2 provides information about the species that are potentially present in the project area. Steller sea lion, harbor seal, harbor porpoise, Dall's porpoise, killer whale, and humpback whale, are the species that regularly occur or that may occur in the project area. A detailed description of the of the species likely to be affected by the Project, including brief introductions to the species

and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHA (81 FR 79350; November 10, 2016). Since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (www.nmfs.noaa.gov/pr/species/mammals/) for generalized species accounts.

Table 2. Marine Mammal Species Potentially Present in the Project Area.

Species	Stock	ESA/MMPA status; Strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR ³	Relative occurrence in Kodiak
Order Cetartiodactyla – Cetacea—Superfamily Odontoceti (toothed whales, dolphins, and porpoises)					
Family Phocoenidae (porpoises)					
Dall's porpoise	Alaska	-: N	83,400 (0.097; n/a; 1993)	Undet	Rare
Harbor porpoise	Gulf of Alaska	-: S	31,046 (n/a; n/a; 2010)	Undet	Common
Order Cetartiodactyla – Cetacea – Superfamily Odontoceti (toothed whales, dolphins, and porpoises)					
Family Delphinidae (dolphins)					
Killer whale	Eastern North Pacific Alaska Resident	-: N	2,347 (n/a; 2,347; 2012)	23.4	Common
	Eastern North Pacific Gulf of AK, Aleutian Islands, and Bering Sea Transient	-: N	587 (n/a; 587; 2012)	5.9	Common
Order Cetartiodactyla – Cetacea – Superfamily Odontoceti (toothed whales, dolphins, and porpoises)					
Family Balaenopteridae					
Humpback whale	Central North Pacific	n/a ⁴ ; S	10, 103 (0.300; 7,890; 2006)	83	Rare
	Western North Pacific	n/a ⁴ ; S	1,107 (0.300; 865; 2006)	3	Rare
Fin whale	Northeast Pacific	E/D; S	n/a (n/a; n/a; 2010)	undet	Rare
Order Cetartiodactyla – Cetacea – Superfamily Odontoceti (toothed whales, dolphins, and porpoises)					
Family Eschrichtiidae					
Grey whale	Eastern North Pacific	-:N	20,990 (0.05; 20,125; 2011)	624	Rare

Order Carnivora – Superfamily Pinnipedia					
Family Otariidae (eared seals and sea lions)					
Steller sea lion	wDPS	E/D; S	49,497 (n/a; 49,497; 2014)	297	Common
Order Carnivora – Superfamily Pinnipedia					
Family Phocidae (earless seals)					
Harbor seal	South Kodiak	-; N	19,199 (n/a; 17,479; 2011)	314	Common

¹ESA status: Endangered (E), Threatened (T) / MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR (see footnote 3) or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

²CV is coefficient of variation; N_{\min} is the minimum estimate of stock abundance. In some cases, CV is not applicable. For certain stocks of pinnipeds, abundance estimates are based upon observations of animals (often pups) ashore multiplied by some correction factor derived from knowledge of the specie's (or similar species') life history to arrive at a best abundance estimate; therefore, there is no associated CV. In these cases, the minimum abundance may represent actual counts of all animals ashore.

³Potential biological removal, defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population size (OSP).

⁴The newly defined DPSs do not currently align with the stocks under the MMPA.

Potential Effects of the Specified Activity on Marine Mammals and Their Habitat

The effects of underwater noise from construction activities for the Project have the potential to result in behavioral harassment of marine mammals in the vicinity of the action area. The Federal Register notice for the proposed IHA (81 FR 79350; November 10, 2016) included a discussion of the effects of anthropogenic noise on marine mammals, therefore that information is not repeated here; please refer to the **Federal Register** notice for that information.”

Effects on Marine Mammal Habitat

The primary impacts to marine mammal habitat are associated with elevated sound levels produced by vibratory and impact pile driving and removal in the area, and down-hole drilling. However, other potential impacts to the surrounding habitat from

physical disturbance are also possible. The Project would not result in permanent impacts to habitats used directly by marine mammals, such as haulout sites, but may have potential short-term impacts to food sources and minor impacts to the immediate substrate during installation and removal of piles during the Project. These potential effects are discussed in detail in the **Federal Register** notice for the proposed IHA (81 FR 79350; November 10, 2016), therefore that information is not repeated here; please refer to that **Federal Register** notice for that information.

Mitigation Measures

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, “and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking” for certain subsistence uses.

For the Project, the City worked with NMFS on the following mitigation measures to minimize the impacts to marine mammals in the project vicinity. The primary purposes of these mitigation measures are to minimize sound levels from the activities, and to monitor marine mammals within designated zones of influence corresponding to NMFS’ current Level A and B harassment thresholds. The Level B zones are depicted in Table 5 found later in the *Estimated Take by Incidental Harassment* section.

Observer Qualifications – Monitoring will be conducted before, during, and after pile driving and removal activities. Monitoring will be conducted by a minimum of two qualified marine mammal observers (MMOs), who will be placed at the best vantage

point(s) practicable to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator. NMFS has minimum requirements for MMOs at the construction site, as well as specific qualifications (*e.g.* experience) needed of each MMO. MMO requirements for construction actions are as follows:

1. Independent observers (*i.e.*, not construction personnel) are required.
2. At least one observer must have prior experience working as an observer.
3. Other observers (that do not have prior experience) may substitute education (undergraduate degree in biological science or related field) or training for experience.
4. Where a team of three or more observers are required, one observer should be designated as lead observer or monitoring coordinator. The lead observer must have prior experience working as an observer.
5. NMFS will require submission and approval of observer CVs.

Qualified MMOs are trained biologists, and need the following additional minimum qualifications:

- (a) Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance; use of binoculars may be necessary to correctly identify the target;
- (b) Ability to conduct field observations and collect data according to assigned protocols

(c) Experience or training in the field identification of marine mammals, including the identification of behaviors

(d) Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations

(e) Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates and times when in-water construction activities were suspended to avoid potential incidental injury from construction sound of marine mammals observed within a defined shutdown zone; and marine mammal behavior

(f) Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary

Monitoring Protocols – The City will conduct briefings between construction supervisors and crews, marine mammal monitoring team, and City staff prior to the start of all pile driving activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

Prior to the start of pile driving activity, the shutdown zone will be monitored for 30 minutes to ensure that it is clear of marine mammals. Pile driving will only commence once observers have declared the shutdown zone clear of marine mammals; animals will be allowed to remain in the shutdown zone (*i.e.*, must leave of their own volition) and their behavior will be monitored and documented. The shutdown zone may only be

declared clear, and pile driving started, when the entire shutdown zone is visible (*i.e.*, when not obscured by dark, rain, fog, etc.).

If a marine mammal approaches or enters the shutdown zone during the course of pile driving operations, activity will be halted and delayed until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 30 minutes have passed without re-detection of large cetaceans (*e.g.* killer whales, humpback whales) or 15 minutes for small cetaceans (*e.g.* Dall's and harbor porpoise) and pinnipeds. Monitoring will be conducted throughout the time required to drive a pile, through 30 minutes post-completion of pile driving activities. Pile driving activities include the time to remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes.

Observers will record all incidents of marine mammal occurrence, regardless of distance from activity, and shall document any behavioral reactions in concert with distance from piles being driven. Observations made outside the shutdown zone will not result in shutdown; that pile segment will be completed without cessation, unless the animal approaches or enters the shutdown zone, at which point all pile driving activities will be halted, as described below. Please see Appendix B of the City's application for details on the marine mammal monitoring plan developed by the City with NMFS' cooperation.

Ramp Up or Soft Start - The use of a soft start procedure is believed to provide additional protection to marine mammals by warning or providing a chance to leave the area prior to the impact hammer operating at full capacity, and typically involves a requirement to initiate sound from the hammer at reduced energy followed by a waiting

period. This procedure is repeated two additional times. It is difficult to specify the reduction in energy for any given hammer because of variation across drivers. The project will utilize soft start techniques for all impact pile driving. NMFS will require the City to initiate sound from impact driving with an initial set of three strikes from the impact hammer at reduced energy, followed by a 1-minute waiting period, then two subsequent three strike sets. Soft start will be required at the beginning of each day's impact pile driving work and at any time following a cessation of pile driving of 30 minutes or longer.

If a marine mammal is present within the Level A harassment zone, ramping up will be delayed until the animal(s) leaves the Level A harassment zone. Activity will begin only after the MMO has determined, through sighting, that the animal(s) has moved outside the Level A harassment zone.

If a Steller sea lion, harbor seal, harbor porpoise, Dall's porpoise, humpback whale, or killer whale is present in the Level B harassment zone, ramping up will begin and a Level B take will be documented. Ramping up will occur when these species are in the Level B harassment zone whether they entered the Level B zone from the Level A zone, or from outside the project area.

If any marine mammal other than Steller sea lions, harbor seals, harbor porpoises, Dall's porpoise, humpback whale, or killer whales is present in the Level B harassment zone, ramping up will be delayed until the animal(s) leaves the zone. Ramping up will begin only after the MMO has determined, through sighting, that the animal(s) has moved outside the harassment zone.

Pile Caps - Pile caps or cushions will be used during all impact pile-driving activities.

Shutdown Zone – For all pile driving activities, the City will establish a shutdown zone. Shutdown zones are intended to contain the area in which sound pressure levels (SPL) equal or exceed acoustic injury criteria, with the purpose being to define an area within which shutdown of activity will occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area), thus preventing injury of marine mammals. Using the user spreadsheet for the new acoustic guidance, injury zones were determined for each of the hearing groups. These zones will be rounded to the nearest 10 or 100 m to be more conservative (Table 3). Isopleths for impact driving have been updated from the proposed IHA due to changes in the values used in the user spreadsheet (pulse duration changed from 0.05 to 0.1, and the duration was changed from hours per day to number of piles per day). As a precautionary measure, intended to reduce the unlikely possibility of injury from direct physical interaction with construction operations, the City will implement a minimum shutdown zone of 10 m radius around each pile for all construction methods for all marine mammals. Additionally, to avoid acoustic injury, the following shutdown zones will be in place for all construction methods (vibratory extraction and installation, down-hole drilling, and impact driving): 100m for humpback whales, harbor porpoise, and Dall’s porpoise, 50 m for harbor seals, and 10 m for killer whales and Steller sea lions (Table 3).

Table 3. Injury zones and shutdown zones for hearing groups for each construction method.

Hearing Group	Low-frequency cetaceans	Mid-frequency cetaceans	High-frequency cetaceans	Phocid pinnipeds	Otariid pinnipeds
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Vibratory installation/extraction ¹					
PTS Isopleth to threshold (m)	7.1 (8)	1.4 (2)	9.3 (10)	5.1 (6)	0.8 (1)
Down-hole drilling ²					
PTS Isopleth to threshold (m)	71.7 (100)	7.3 (8)	64.6 (100)	43.7 (100)	5.5 (6)
Impact driving ³					
PTS Isopleth to threshold (m)	23.1 (25)	2.0 (2)	26.2 (30)	14.5 (15)	2.1 (3)
Shutdown zone (m)	100	10*	100	50	10*

Note: Numbers in parentheses are the rounded zones (to the nearest 1 if under 10 m, and 10 or 100 m)

*The minimum 10 m shutdown in place for all construction projects will cover the injury zones for these hearing groups.

¹For vibratory driving, SL is 183.8, TL is 21.9logR, weighting function is 2.5, duration is 0.69 hours, and distance from the source is one meter.

²For down-hole drilling, SL is 192.5, TL is 18.9logR, weighting function is two, duration is four hours, and distance from the source is one meter.

³For impact driving, SL is 205.9, weighting function is two, duration is 6 piles per day, pulse duration is 0.1, TL is 20.3log R, strikes per pile is five, and distance from the source is one meter.

For in-water heavy machinery work other than pile driving (using, *e.g.*, standard barges, tug boats, barge-mounted excavators, or clamshell equipment used to place or remove material), if a marine mammal comes within 10 m, operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions.

Disturbance Zone – Disturbance zones are the areas in which SPLs equal or exceed 120 decibels (dB) root mean square (rms) (for continuous sound) and 160 dB rms (for impulsive sound) for pile driving installation and removal. Disturbance zones provide utility for monitoring conducted for mitigation purposes (*i.e.*, shutdown zone monitoring) by establishing monitoring protocols for areas adjacent to the shutdown zones. The disturbance zone will be monitored by appropriately stationed MMOs. Monitoring of disturbance zones enables observers to be aware of and communicate the presence of marine mammals in the project area but outside the shutdown zone and thus

prepare for potential shutdowns of activity. However, the primary purpose of disturbance zone monitoring is for documenting incidents of Level B harassment.

Any marine mammal documented within the Level B harassment zone will constitute a Level B take (harassment), and will be recorded and reported as such. Nominal radial distances for disturbance zones are shown in Table 4. Given the size of the disturbance zone for down-hole drilling, it is impossible to guarantee that all animals will be observed or to make comprehensive observations of fine-scale behavioral reactions to sound, and only a portion of the zone (*e.g.*, what may be reasonably observed by visual observers) will be observed.

In order to document observed incidents of harassment, monitors record all marine mammal observations, regardless of location. The observer's location, as well as the location of the pile being driven or removed, is known from a GPS. The location of the animal is estimated as a distance from the observer, which is then compared to the location from the pile. It may then be estimated whether the animal was exposed to sound levels constituting incidental harassment on the basis of predicted distances to relevant thresholds in post-processing of observational and acoustic data, and a precise accounting of observed incidences of harassment created. This information may then be used to extrapolate observed takes to reach an approximate understanding of actual total takes.

Level B take of grey whales and fin whales is not requested and will be avoided by shutting down before individuals of these species enter the Level B zones.

Table 4. Calculated threshold distances (m) from an acoustic monitoring study conducted at the Pier 1 in March 2016.

Source	Threshold distances (m)	
	160 dB	120 dB

Vibratory pile driving/ extraction	n/a	821 (900)
Down-hole drilling	n/a	6846 (7,000)
Impact pile driving	183 (200)	n/a

Note: Numbers in parentheses are the rounded zones (to the nearest 100 or 1,000 m)

Time Restrictions - Work will occur only during daylight hours when visual monitoring of marine mammals can be conducted. To minimize impacts to pink salmon (*Oncorhynchus gorbuscha*) fry and coho salmon (*O. kisutch*) smolt, the City will observe time restrictions on impact pile driving from May 1, 2017 through June 30, 2017. If impact pile-driving occurs from May 1 through June 30, it will occur in the evenings during daylight hours, after the 12-hour period that begins at civil dawn.

Mitigation measures to ensure availability of such species or stock for taking for certain subsistence uses are discussed later in this document (see *Impact on Availability of Affected Species or Stock for Taking for Subsistence Uses* section).

Mitigation Conclusions

NMFS has carefully evaluated the applicant's mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of the mitigation measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammal species or stocks;
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and

- The practicability of the measure for applicant implementation.

Any mitigation measure(s) prescribed by NMFS should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed below:

1. Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).
2. A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of pile driving and down-hole drilling, or other activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).
3. A reduction in the number of times (total number or number at biologically important time or location) individuals will be exposed to received levels of pile driving and down-hole drilling, or other activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).
4. A reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of pile driving and down-hole drilling, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only).
5. Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block

or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.

6. For monitoring directly related to mitigation – an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on our evaluation of the applicant's mitigation measures and other measures considered by NMFS, we have determined that the mitigation measures provide the means of effecting the least practicable impact on marine mammals species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an Incidental Take Authorization (ITA) for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth, "requirements pertaining to the monitoring and reporting of such taking." The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for ITAs must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the action area. The City submitted a marine mammal monitoring plan as part of the IHA application. It can be found in Appendix B of their application.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals:

1. An increase in the probability of detecting marine mammals, both within the mitigation zone (thus allowing for more effective implementation of the mitigation) and in general to generate more data to contribute to the analyses mentioned below;

2. An increase in our understanding of how many marine mammals are likely to be exposed to levels of pile driving and down-hole drilling that we associate with specific adverse effects, such as behavioral harassment, Temporary Threshold Shift (TTS), or Permanent Threshold Shift (PTS);

3. An increase in our understanding of how marine mammals respond to stimuli expected to result in take and how anticipated adverse effects on individuals (in different ways and to varying degrees) may impact the population, species, or stock (specifically through effects on annual rates of recruitment or survival) through any of the following methods:

- Behavioral observations in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);
- Physiological measurements in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);
- Distribution and/or abundance comparisons in times or areas with concentrated stimuli versus times or areas without stimuli;

4. An increased knowledge of the affected species; and

5. An increase in our understanding of the effectiveness of certain mitigation and monitoring measures.

Visual Marine Mammal Observation

The City will collect sighting data and behavioral responses to construction for marine mammal species observed in the region of activity during the period of activity. All MMOs will be trained in marine mammal identification and behaviors and are required to have no other construction-related tasks while conducting monitoring. As discussed previously, the City will monitor the shutdown zone and disturbance zone before, during, and after pile driving. The MMOs and the City authorities will meet to determine the most appropriate observation platform(s) for monitoring during pile installation and extraction.

Based on our MMO requirements, the Marine Mammal Monitoring Plan will implement similar procedures as those described in the *Mitigation Measures section*.

Data Collection

We require that observers use approved data forms. Among other pieces of information, the City will record detailed information about any implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any. In addition, the City will attempt to distinguish between the number of individual animals taken and the number of incidents of take. We require that, at a minimum, the following information be collected on the sighting forms:

- Date and time that monitored activity begins or ends;
- Construction activities occurring during each observation period;

- Weather parameters (*e.g.*, percent cover, visibility);
- Water conditions (*e.g.*, sea state, tide state);
- Species, numbers, and, if possible, sex and age class of marine mammals;
- Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
- Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
- Locations of all marine mammal observations; and
- Other human activity in the area.

Reporting Measures

The City will provide NMFS with a draft monitoring report within 90 days of the conclusion of the construction work. The report will include marine mammal observations pre-activity, during-activity, and post-activity during pile driving days, and will also provide descriptions of any behavioral responses to construction activities by marine mammals and a complete description of all mitigation shutdowns and the results of those actions and an extrapolated total take estimate based on the number of marine mammals observed during the course of construction. A final report must be submitted within thirty days following resolution of comments on the draft report. If no comments are received from NMFS within 30 days, the draft final report will constitute the final report. If comments are received, a final report must be submitted within 30 days after receipt of comments.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA, such as serious injury or mortality (*e.g.*, ship-strike, gear interaction, and/or entanglement), the City will immediately cease the specified activities and immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the Alaska Stranding Coordinator. The report will include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- Description of all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities will not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with the City to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The

City will not be able to resume their activities until notified by NMFS via letter, email, or telephone.

In the event that the City discovers an injured or dead marine mammal, and the lead MMO determines that the cause of the injury or death is unknown and the death is relatively recent (*i.e.*, in less than a moderate state of decomposition as described in the next paragraph), the City will immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the Alaska Stranding Coordinator.

The report will include the same information identified in the paragraph above. Activities will be able to continue while NMFS reviews the circumstances of the incident. NMFS will work with the City to determine whether modifications in the activities are appropriate.

In the event that the City discovers an injured or dead marine mammal, and the lead MMO determines that the injury or death is not associated with or related to the activities authorized in the IHA (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), the City will report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS West Coast Stranding Hotline and/or by email to the Alaska Stranding Coordinator, within 24 hours of the discovery. The City will provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network.

Estimated Take by Incidental Harassment

Except with respect to certain activities not pertinent here, the MMPA defines “harassment” as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

All anticipated takes will be by Level B harassment resulting from vibratory pile driving and removal, impact pile driving, or down-hole drilling. Level B harassment may result in temporary changes in behavior. Note that injury, serious injury, and lethal takes are not expected, and are not authorized, for these activities due to the mitigation and monitoring measures that are expected to minimize the possibility of such take.

If a marine mammal responds to a stimulus by changing its behavior (*e.g.*, through relatively minor changes in locomotion direction/speed or vocalization behavior), the response may or may not constitute taking at the individual level, and is unlikely to affect the stock or the species as a whole. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on animals or on the stock or species could potentially be significant (*e.g.*, Lusseau and Bejder 2007; Weilgart 2007). Given the many uncertainties in predicting the quantity and types of impacts of sound on marine mammals, it is common practice to estimate how many animals are likely to be present within a particular distance of a given activity, or exposed to a particular level of sound, in order to estimate take.

Upland work can generate airborne sound and create visual disturbance that could potentially result in disturbance to marine mammals (specifically, pinnipeds) that are

hauled out or at the water's surface with heads above the water. However, because there are no regular haul-outs in close proximity to the Kodiak transient float, NMFS believes that incidents of incidental take resulting from airborne sound or visual disturbance are unlikely.

The City has requested authorization for the incidental taking of small numbers, by Level B harassment, of harbor porpoise, Dall's porpoise, killer whale, humpback whale, Steller sea lion, and harbor seal near the project area that may result from impact and vibratory pile driving, vibratory pile removal, and down-hole drilling construction activities associated with the transient float project.

The calculation for estimating marine mammal exposures to underwater noise is:

Exposure estimate = number of animals exposed/day * number of days of activity

In order to estimate the potential incidents of take that may occur incidental to the specified activity, we must first estimate the extent of the sound field that may be produced by the activity and then consider the sound field in combination with information about marine mammal density or abundance in the project area. We first provide information on applicable sound thresholds for determining effects to marine mammals before describing the information used in estimating the sound fields, the available marine mammal density or abundance information, and the method of estimating potential incidences of take.

Sound Thresholds

We use the following generic sound exposure thresholds (Table 5) to determine when an activity that produces sound might result in impacts to a marine mammal such that a take by behavioral harassment (Level B) might occur.

Table 5. Underwater Disturbance Threshold Decibel Levels for Marine Mammals.

Criterion	Criterion Definition	Threshold*
Level B harassment	Behavioral disruption for impulse noise (<i>e.g.</i> , impact pile driving)	160 dB RMS
Level B harassment	Behavioral disruption for non-pulse noise (<i>e.g.</i> , vibratory pile driving, drilling)	120 dB RMS

*All decibel levels referenced to 1 micropascal (re: 1 μ Pa). Note all thresholds are based off root mean square (RMS) levels

We use NMFS' new acoustic criteria (NMFS 2016a, 81 FR 51694; August 4, 2016) to determine sound exposure thresholds to determine when an activity that produces sound might result in impacts to a marine mammal such that a take by injury, in the form of PTS, might occur.

Distance to Sound Thresholds

The sound field in the project area is the existing ambient noise plus additional construction noise from the Project. The primary components of the project expected to affect marine mammals is the sound generated by impact pile driving, vibratory pile driving, vibratory pile removal, and down-hole drilling.

After vibratory hammering has installed the pile through the overburden to the top of the bedrock layer, the vibratory hammer will be removed, and the down-hole drill will be inserted through the pile. The head extends below the pile and the drill rotates through soils and rock. The drilling/hammering takes place below the sediment layer and, as the

drill advances, below the bedrock layer as well. Underwater noise levels are relatively low because the impact is taking place below the substrate rather than at the top of the piling, which limits transmission of noise through the water column. Additionally, there is a drive shoe welded on the bottom of the pile, and the upper portion of the bit rests on the shoe, which aids in advancement of the pile as drilling progresses. When the proper depth is achieved, the drill is retracted and the pile is left in place. Impact hammering typically generates the loudest noise associated with pile driving, but for the transient float project, use will be limited to a few blows per 24-inch steel pile.

Several factors are expected to minimize the potential impacts of pile-driving and drilling noise associated with the project:

- The soft sediment marine seafloor and shallow waters in the project area
- Land forms across the channel that will block the noise from spreading
- The relatively high background noise level in the project area

Sound will dissipate relatively rapidly in the shallow waters over soft seafloors in the project area (NMFS 2013). St. Herman Harbor (Figure 2 in the application), where the Dog Bay float is located, is protected from the transient float construction noise by land projections and islands, which will block and redirect sound. Near Island and Kodiak Island, on either side of Near Island Channel, prevent the sound from travelling underwater to the north, south, and southeast, restricting the noise to most of the channel; however a narrow band of noise may extend to Woody Island, approximately 3.75 kilometers (km) to the East.

The project includes vibratory removal of 12-inch timber and steel piles; and vibratory installation and down-hole drilling of permanent 24-inch steel piles. Each 24-

inch pile may also be subject to a few blows from an impact hammer for proofing. No data are available for vibratory removal of piles, so it will be conservatively assumed that vibratory removal of piles will produce the same source level as vibratory installation.

SPLs for this project were used from the nearby Pier 1 Kodiak ferry terminal measurements of 24-in steel piles from JASCO 2016 (Warner and Austin 2016). The ferry terminal is approximately 100 m from the transient float, and therefore has similar environmental conditions, and the project used the same installation methods and same size piles, making this a good proxy. Vibratory driving had a measured source level (SL) of 183.8 dB rms at one meter. Down-hole drilling had a measured SL of 192.5 dB at one meter. Impact pile driving had a measured SL of 205.9 at one meter.

Underwater Sound Propagation Formula—Pile driving generates underwater noise that can potentially result in disturbance to marine mammals in the project area. Transmission loss (TL) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. The general formula for underwater TL is:

$$TL = B * \log_{10} (R_1/R_2), \text{ where}$$

TL = transmission loss in dB

R_1 = the distance of the modeled SPL from the driven pile, and

R_2 = the distance from the driven pile of the initial measurement

NMFS typically recommends a default practical spreading loss of 15 dB per tenfold increase in distance. However, for this analysis for the transient float project area, a TL of $21.9 \log(R/10)$ (*i.e.*, 21.9-dB loss per tenfold increase in distance) was used for

vibratory pile driving, $18.9\text{Log}(R/10)$ was used for down-hole drilling, and a $20.3\text{Log TL}(R/10)$ function was used for impact driving (Warner and Austin, 2016). TL values were based on measured attenuation rates at the Pier 1, Kodiak Ferry Terminal, located approximately 100m away from the transient float project area.

Distances to the harassment isopleths vary by marine mammal type and pile extraction/driving tool. The isopleth for Level A harassment are summarized in Table 3, and the isopleths for Level B harassment are summarized in Table 4. The Zone of Influence ZOIs will be rounded up to the nearest 10, 100, or 1,000 meters for the transient float project.

Note that the actual area ensonified by pile driving activities is significantly constrained by local topography relative to the total threshold radius. The actual ensonified area was determined using a straight line-of-sight projection from the anticipated pile driving locations. Distances to the underwater sound isopleths for Level A and Level B harassment zones are illustrated respectively in Figures 15-17 in the City's application.

The method used for calculating potential exposures to impact and vibratory pile driving noise for each threshold was estimated using local marine mammal data sets, monitoring reports from previous projects in the same vicinity, best professional judgment from state and federal agencies, and data from take estimates on similar projects with similar actions. All estimates are conservative and include the following assumptions:

- All pilings installed at each site will have an underwater noise disturbance equal to the piling that causes the greatest noise disturbance (*i.e.*, the piling farthest from shore)

installed with the method that has the largest ZOI. The largest underwater disturbance ZOI would be produced by down-hole drilling. The ZOIs for each threshold are not spherical and are truncated by land masses on either side of the channel which will dissipate sound pressure waves.

- Exposures were based on estimated work hours. Numbers of days were based on an average production rate of eight hours of vibratory driving/extraction, 48 hours of down-hole drilling, and less than one hour of impact driving. Note that impact driving is likely to occur only on days when vibratory driving occurs.
- In absence of site specific underwater acoustic propagation modeling, the practical spreading loss model was used to determine the ZOI.

Steller sea lion

Steller sea lions are common in the project area and may be encountered daily. Pinniped population estimates are typically made when the animals are hauled out and available to be counted. There have been numerous counts of Steller sea lions in this area over the past few years. Aerial surveys from 2004 through 2006 indicated peak winter (October–April) counts at the Dog Bay float ranging from 27 to 33 animals (Wynne *et al.*, 2011). More than 100 Steller sea lions were counted on the Dog Bay float at times in spring 2015, although the mean number was much smaller (Wynne 2015b). Counts in February 2015 during a site visit by biologists ranged from approximately 28 to 45 Steller sea lions. According to ABR (2016), however, maximal weekly counts of sea lions at Dog Bay float were only loosely correlated with weekly average-hourly rates of sea lion observations within the construction area. Near Island Channel counts of Steller sea lions adjacent to Pier 1 have ranged from zero to approximately 25 sea lions at one time

(FHWA and DOT&PF 2015). More recent counts completed between November 2015 and June 2016 by protected species observers (PSOs) working on the Kodiak Ferry Terminal and Dock Improvements Project (approximately 100 m from the transient float) ranged from approximately 6 to 114 Steller sea lions, with an average of 33 (ABR 2016). It has been estimated that about 40 unique individual sea lions likely pass by the project site each day (Speckman 2015; Ward 2015; Wynne 2015a). Incidental take was estimated for Steller sea lions by conservatively assuming that, within any given day, approximately 40 unique individual Steller sea lions may be present at some time during that day within the Level B harassment zones during active pile extraction or installation.

It is assumed that Steller sea lions may be present every day, and also that take will include multiple harassments of the same individual(s) both within and among days, which means that these estimates are likely an overestimate of the number of individuals.

An estimated total of 480 Steller sea lions (40 sea lions/day * 12 days of pile installation or extraction) could be exposed to noise at the Level B harassment level during vibratory and impact pile driving (Table 6).

The attraction of sea lions to the seafood processing plant increases the possibility of individual Steller sea lions occasionally entering the Level A harassment zone (the largest injury zone is 5.5 m during down-hole drilling); however a minimum 10 m shutdown will be in effect for all construction methods, thereby eliminating the potential for Level A harassment. No Level A take is authorized for Steller sea lions.

Harbor seal

Harbor seals are expected to be encountered in low numbers within the project area. However, based on the known range of the South Kodiak stock, 13 single sightings

during 110 days of monitoring of the Kodiak Ferry Terminal and Dock Improvements Project, and occasional sightings during monitoring of projects at other locations on Kodiak Island, it is assumed that harbor seals could be present every day. This analysis conservatively assumes that harbor seals could be present on any one day during the 12 days of pile installation and removal. Using this number, it is estimated that 48 harbor seals could be exposed to noise at the Level B harassment level during in-water construction activities (Table 6). We assumed three harbor seals (the maximum number of seals observed during the Kodiak Ferry Terminal and Dock Improvements Project over 110 days of monitoring) may be seen in Near Island Channel for 36 takes, and included an additional one seal per day that may be present in the larger 120 dB zone for an additional 12 seals.

The shutdown zone for harbor seals is 50 m for all construction methods. Because this shutdown zone covers the entire injury zone (10 m for impact and vibratory, and 50 m for down-hole drilling), Level A harassment can be avoided. No Level A take is authorized for harbor seals.

Harbor porpoise

Harbor porpoises are expected to be encountered in low numbers within the project area. Based on the known range of the Gulf of Alaska stock, 6 sightings of singles or pairs only during 110 days of monitoring of the Kodiak Ferry Terminal and Dock Improvements project, and occasional sightings during monitoring of projects at other locations on Kodiak Island, it is assumed that harbor porpoises could be present every day. Dahlheim (2009, 2015) states that the average group size of harbor porpoise is between one and two individuals. To be conservative, we assumed groups of two animals

may be seen on any given day. NMFS will authorize 24 Level B takes (two animals on 12 days) of harbor porpoises by exposure to underwater noise over the duration of construction activities (Table 6).

A shutdown zone of 100 m will be established for all construction methods for harbor porpoise. The largest injury zone is 64.6 m (rounded to 100 m) for this species; therefore, level A take can be avoided. No Level A take is authorized for harbor porpoise.

Dall's porpoise

Dall's porpoises are expected to be encountered within the project area rarely. Although no sightings of Dall's porpoise occurred during 110 days monitoring of the Kodiak Ferry Terminal and Dock Improvements Project, the project area is within the known range of the Gulf of Alaska stock and they have been observed at other locations on Kodiak Island. This project also includes a narrow band that will be ensonified extending to Woody Island, where Dall's porpoise may be present. There is minimal information on group sizes of this species in the Kodiak area. Dahlheim (2009) noted mean group size of Dall's porpoise in Southeast Alaska between the spring and fall of 1991- 2007 ranged from 2.51 to 5.46 animals, with average group sizes between 2.77 and 3.55. OBIS SEAMAP states that Dall's porpoise usually form small groups between 2 and 12 individuals, and had two observations of Dall's porpoise near Kodiak Island with group sizes of one and two individuals (Halpin 2009 at OBIS-SEAMAP 2016). We therefore, conservatively, assume that Dall's porpoises with an average group size of seven individuals could be present in the area every other day of in-water construction. NMFS will authorize 42 Dall's porpoise level B takes (7 animal/day * 6 days of pile activity).

No Level A takes are requested for this species. No Level A take is expected since Dall's porpoise are uncommon in the area, preferring deeper waters, and there will be a 100 m shutdown for all construction methods for Dall's porpoise to further reduce the likelihood of injury.

Killer whale

Killer whales are expected to be in the Kodiak harbor area sporadically from January through April and to enter the project area in low numbers. Four killer whale pods were observed during 110 days of monitoring for the Kodiak Ferry Terminal and Dock Improvements Project with the largest pod size of 7 individuals. NMFS estimates that a pod of 7 individual whales may enter the project area on half of the days during the 12 days of pile installation and removal. NMFS therefore will authorize 42 Level B takes (7 killer whales/visit * 6 days) of killer whales by exposure to underwater noise over the duration of construction activities. This increased from the proposed IHA after reconsideration of how often this species may be in the action area, which may be more often than suggested in the proposed IHA. No Level A take is requested under this authorization, since the injury zones are very small (10 m for all methods), and it is unlikely a killer whale will come that close to the piles. NMFS also expects that construction could be shut down before the whales enter the Level A harassment area.

Humpback whale

Humpback whales are rare in the action area. One solitary animal was observed in March 2016 during 110 days monitoring of the Kodiak Ferry Terminal and Dock Improvements Project. Conservatively, it is assumed that one individual could be present in the area on half of the days of in-water construction. NMFS will therefore authorize six

Level B takes (Table 6). Because humpback whales are rare in the area, and there will be a 100 m shutdown in place that covers the injury zones (10 m for impact and vibratory, and 100 m for down-hole drilling), no Level A takes are authorized for this species.

Based on Wade *et al.* (2016), the probability is that five of the humpback whales that would be taken through Level B acoustic harassment would be from the Hawaii DPS (not listed under ESA), one humpback whale would be from threatened Mexico DPS, and no humpback whales would be from the endangered Western North Pacific DPS.

Table 6. Summary of the estimated numbers of marine mammals potentially exposed to Level A and Level B harassment noise levels.

Species	Level A Injury Takes	Level B Harassment Takes	Total
Steller sea lion	0	480	480
Harbor seal	0	48	48
Harbor porpoise	0	24	24
Dall's porpoise	0	42	42
Killer whale	0	42	42
Humpback whale	0	6	6
Total	0	642	642

Analysis and Determinations

Negligible Impact

Negligible impact is “an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival” (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes, alone, is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken,” NMFS must consider other factors, such as the likely nature of any responses

(their intensity, duration, etc.), the context of any responses (critical reproductive time or location, migration, etc.), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, effects on habitat, and the status of the species.

To avoid repetition, the discussion of our analyses applies to all the species listed in Table 6, given that the anticipated effects of this pile driving project on marine mammals are expected to be relatively similar in nature. There is no information about the size, status, or structure of any species or stock that would lead to a different analysis for this activity, else species-specific factors would be identified and analyzed.

Pile extraction, pile driving, and down-hole drilling activities associated with the reconstruction of the transient float, as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment (behavioral disturbance) from underwater sounds generated from pile driving and drilling. Potential takes could occur if individuals of these species are present in the ensonified zone when in-water construction is under way.

The takes from Level B harassment will be due to potential behavioral disturbance. No injury, serious injury, or mortality is anticipated given the nature of the activity and measures designed to minimize the possibility of serious injury to marine mammals. These noise exposures may cause behavioral modification to a small number of each affected marine mammal species. However, the City's activities are fairly localized and of short duration, and the noise exposures are therefore expected to be localized and short-term. The entire project area is limited to the transient float area and its immediate surroundings with only a small band extending out to Woody Island.

Actions covered under the Authorization include extracting 19 12-inch steel piles and installing 12 24-inch steel piles to support the replacement float and gangway.

Specifically, the use of impact driving will be limited to an estimated maximum of one hour over the course of 12 days of construction, and will likely require less time. Each 24-inch pile will require about two to five blows of an impact hammer to confirm that piles are set into bedrock for a maximum time expected of three minutes of impact hammering per pile. Vibratory driving will be necessary for an estimated maximum of eight hours and down-hole drilling will require a maximum of 48 hours. The likelihood that marine mammals will be detected by trained observers is high under the environmental conditions described for the reconstruction of the transient float. Therefore, the mitigation and monitoring measures are expected to reduce the likelihood of injury and behavior exposures.

No important feeding and/or reproductive areas for marine mammals are known to be near the action area. The project activities will not modify existing marine mammal habitat, nor will they result in the destruction or adverse modification of critical habitat designated for any threatened or endangered species. The activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range; but, because of the short duration of the activities and the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

Sea lions are common in the Kodiak harbor area, and the possibility exists that some of these sea lions are already hearing-impaired or deaf (Wynne 2014). Fishermen

have been known to protect their gear and catches by using “seal bombs” in an effort to disperse sea lions away from fishing gear. The use of seal bombs requires appropriate permits from the Bureau of Alcohol, Tobacco, Firearms and Explosives. Sound levels produced by seal bombs are well above levels that are known to cause TTS (temporary loss of hearing), and PTS (partial or full loss of hearing) in marine mammals (Wynne 2014).

Sea lions in the Kodiak harbor area are habituated to fishing vessels and are skilled at gaining access to fish. It is likely that some of the same animals follow local vessels to the nearby fishing grounds and back to town. It is possible that these sea lions are also hearing-impaired or deaf due to seal bombs, although no studies have been published to confirm this. It is not known how a hearing-impaired or deaf sea lion would respond to typical mitigation efforts at a construction site such as ramping up of pile-driving equipment. It is also unknown whether a hearing-impaired or deaf sea lion would avoid pile-driving activity, or whether such an animal might approach closely, without responding to or being impacted by the noise level. However, there will be a minimum 10 m shutdown for all pile driving, to avoid additional exposure.

Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.*, Thorson and Reyff, 2006; Lerma, 2014). Most likely, individuals will simply move away from the sound source and be temporarily displaced from the areas of pile driving, although even this reaction has been observed primarily only in association with impact pile driving. In response to

vibratory driving, pinnipeds (which may become somewhat habituated to human activity in industrial or urban waterways) have been observed to orient towards and sometimes move towards the sound. The pile extraction and driving activities analyzed here are similar to, or less impactful than, numerous construction activities conducted in other similar locations, including the nearby Pier 1 Kodiak ferry terminal (approximately 100 m away), which have taken place with no reported injuries or mortality to marine mammals, and no known long-term adverse consequences from behavioral harassment. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in hearing impairment or to significantly disrupt foraging behavior. Thus, even repeated Level B harassment of some small subset of the overall stock is unlikely to result in any significant realized decrease in fitness for the affected individuals, and thus will not result in any adverse impact to the stock as a whole.

In summary, this negligible impact analysis is founded on the following factors: (1) the possibility of non-auditory injury, serious injury, or mortality may reasonably be considered discountable; (2) the anticipated incidents of Level B harassment consist of, at worst, temporary modifications in behavior; (3) the short duration of in-water construction activities (12 days), and; (4) the presumed efficacy of the mitigation measures in reducing the effects of the specified activity to the level of least practicable impact. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activity will have only short-term effects on individuals. The specified activity is not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the monitoring and mitigation measures, NMFS finds that the total marine mammal take from the City's Project will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers Analysis

Table 7 presents the number of animals that could be exposed to received noise levels that could cause Level B harassment for the work at the transient float project site. Our analysis shows that between <1 percent - 7.16 percent of the populations of affected stocks that could be taken by harassment. Therefore, the numbers of animals authorized to be taken for all species are considered small relative to the relevant stocks or populations even if each estimated taking occurred to a new individual – an extremely unlikely scenario. For pinnipeds, especially Steller sea lions, occurring in the vicinity of the transient float, there will almost certainly be some overlap in individuals present day-to-day, and these takes are likely to occur only within some small portion of the overall regional stock.

Table 7. Estimated Numbers and Percentage of Stock That May Be Exposed to Level B Harassment.

Species	Authorized Level B takes	Stock Abundance estimate	Percentage of total stock (%)
Steller sea lion (<i>Eumatopias jubatus</i>) <i>wDPS</i>	480	49,497	0.97
Harbor seal (<i>Phoca vitulina</i>) <i>South Kodiak stock</i>	48	19,199	0.25
Harbor porpoise (<i>Phocoena phocoena</i>) <i>Gulf of Alaska stock</i>	24	31,046	0.08
Dall's porpoise (<i>Phocoenoides dalli</i>) <i>Alaska stock</i>	42	83,400	0.05
Killer whale (<i>Orcinus orca</i>)	42		

<i>Eastern North Pacific Alaska Resident stock</i>		2,347	1.79
<i>Eastern North Pacific Gulf of Alaska, Aleutian Islands, and Bering Sea stock</i>		587	7.16
Humpback whale (<i>Megaptera novaeangliae</i>)	6	10,103	0.06
<i>Central North Pacific Stock</i>		1,107	0.54
<i>Western North Pacific Stock</i>			

Based on the analysis contained herein NMFS finds that small numbers of marine mammals will be taken relative to the populations of the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

Alaska Natives have traditionally harvested subsistence resources in the Kodiak area for many hundreds of years, particularly Steller sea lions and harbor seals. No traditional subsistence hunting areas are within the project vicinity, however; the nearest haulouts and rookeries for Steller sea lions and harbor seals are the Long Island, Cape Chiniak, and Ugak Island haul-outs and the Marmot Island rookery, many miles away. These locations are, respectively 4, 13, 25 and 28 nautical miles distant from the project area. Since all project activities will take place within the immediate vicinity of the transient float site, the project will not have an adverse impact on the availability of marine mammals for subsistence use at locations farther away. No disturbance or displacement of sea lions or harbor seals from traditional hunting areas by activities associated with the transient project is expected. No changes to availability of subsistence resources will result from transient float replacement project activities.

The City contacted the Alaska Harbor Seal Commission and the Steller sea lion Commission. Neither Commission had concerns about the impacts of this activity on native Alaska subsistence hunts.

Endangered Species Act (ESA)

There are two marine mammal species that are listed as endangered under the ESA with confirmed or possible occurrence in the study area: the western North Pacific (WNP) DPS and Mexico DPS of humpback whale and the western DPS of Steller sea lion. The project location is also within critical habitat of two major Steller sea lion haulouts closest to the project area: Long Island and Cape Chiniak, which are approximately 4.6 nautical miles (8.5 kilometers) and 13.8 nautical miles (25.6 kilometers) away from the project site, respectively. There are no rookeries within 20 miles of the project location. The NMFS Alaska Regional Office Protected Resources Division issued a Biological Opinion on February 7, 2017 under Section 7 of the ESA, on the issuance of an IHA to the City under section 101(a)(5)(D) of the MMPA by the NMFS Permits and Conservation Division. The Biological Opinion concluded that the action is not likely to jeopardize the continued existence of western DPS Steller sea lions or the Mexico DPSs of humpback whales, and is not likely to destroy or adversely modify western DPS Steller sea lion critical habitat.

National Environmental Policy Act (NEPA)

NMFS prepared an EA and analyzed the potential impacts to marine mammals that would result from the City's construction project. A Finding of No Significant Impact (FONSI) was signed in February 2017. A copy of the EA and Finding of No Significant Impact (FONSI) is available upon request (see ADDRESSES).

Dated: February 13, 2017.

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National Marine Fisheries Service.

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